5(2),5(4) SOV/75-13-6-15/21

AUTHORS: Novik, R. M., Lyalikov, Yu. S.

TITLE: Polarographic Determination of Iodides in Melts (Polyarograficheskoye opredeleniye yodidov v rasplavakh)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol 13, Nr 6, pp 691-694 (USSR)

ABSTRACT: Earlier papers (Ref 1) reported on the possibility of determining various anions in a mixture of molten nitrates acting as medium and an electrode couple Pt_{micro} - Pt_{macro}.

The behavior of chromates and nitrites in molten nitrates had already been accurately investigated (Refs 2, 3). In the present paper ion J^- is investigated, which causes two unmistakable waves in the anode range. The first corresponds to the anodic oxidation of the iodide; its magnitude depending on the concentration of the iodide. The second wave occurs only at the moment of introducing iodide into the melt and corresponds to the nitrite anion wave. Acidifying of the melt by $KHSO_4$ causes the second wave to disappear, whilst the first wave remains unchanged. An addition of sodium nitrite to the melt causes the second wave to increase in magnitude. The formation of nitrite

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in the melt after addition of iodide is explained by the reaction: $2\ KJ + KNO_3 \rightleftarrows J_2 + KNO_2 + K_2O$.

Without considering this reaction, the determination of J^- in the melt can be effected in a polarographic way, basing on the occurrence of a condition of equilibrium. The magnitude of the first wave of the iodide does not change during the 30-120 minutes following the addition of the weighed iodide portion and is well reproducible. The polarographic curves are different, depending from which side they are taken. This is due to a modification of the electrode surface while polarographing, especially at high temperatures. In order to obtain reproducibility, the anode must be cleaned by annealing. At 340 ± 5° the half-wave potential is 0.32 ± 0.02 V and is almost independent of the iodide concentration. When the polarographic wave begins to appear, the anode potential changes only to a slight extent, while the cathode potential change is considerable. When the limit current is reached, the anode potential changes to a high degree, while the cathode potential remains almost unchanged. The temperature coefficient of the diffusion current was determined by two methods (Ref 3). It amounts to 1.5% per degree. It was established that the

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quantity of the diffusion current linearly depends on the concentration of J^- in the melt. The determination of various quantities of potassium iodide on the basis of the calibration line offers satisfying results. The mean error amounts to ± 11%. Investigations showed that polarographic determination of iodides in molten nitrates at temperatures of 270-390° and in molten chlorides at temperatures of 700-750° is possible. Also the possibility of amperometric titration of the iodide with weighed micro-portions of silver nitrate and potassium bichromate is shown. It was also established that a complex formation occurs between the ions J^-, Cd^{2+} and Pb^{2+} in molten nitrates. Students of the University of Kishinev N. Zotova and Ye. Levinzon participated in carrying out the present paper. There are 5 figures, 4 tables, and 4 Soviet references.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet (Kishinev State University)

SUBMITTED: May 30, 1957

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SOV/153-2-4-7/32

5(2,4)
AUTHORS: Temyanko, V. S., Bardin, M. B., Lyalikov, Yu. S.

TITLE: Polarographic Determination of Platinum on a Rotating Platinum Microdisk Electrode

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 4, pp 503 - 508 (USSR)

ABSTRACT: The authors criticize the use of the dropping electrode for the investigation of the polarographic behavior of platinum (Refs 1-14). The use of a solid electrode instead of the dropping electrode is more favorable for overcoming the difficulties occurring (Ref 15). There are, however, also some shortcomings. They can be eliminated if a rotating electrode is used. The composition of the paper under discussion was caused by these facts. Figure 1 shows the hermetic cell with a shutter and a rotating electrode. Figure 2 shows the volt-ampere curves of platinum. Figure 3 shows the examination of the reversibility of the reduction of the ion

$[PtCl_6]^{2-}$. Table 1 shows the reduction potentials of platinum. Table 2 shows the computation of the number of electrons parti-

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cipating in the reduction reaction of the ion mentioned. Figure 4 shows the dependence of the diffusion current of platinum on the rotation rate of the microdisk electrode. As can be seen, the dependence found here agrees with the theoretical one found by means of the equation of V. Levich (Ref 22). The authors investigated the possibility of polarographing platinum on the background of various electrolytes. They investigated the effect of the nature and concentration of the salts: $NaNO_3$, NaCl, NaBr, NaJ, $NaClO_4$, etc,further of the buffer solutions: of the acetate- and phosphate-citrate buffer, of HNO_3, H_2SO_4, HCl, of ammonia, and other substances. The platinum wave increases to a certain extent (Ref 16) with the increase in the $NaNO_3$ or HNO_3 concentration. The acidity increase of 10^{-5} to 2 n by a concentration increase of HNO_3 did not influence this wave but, naturally, increased the second wave. The use of NaCl or HCl, instead of nitrate, changes the character of the platinum polarogram. NaBr and NaJ (Fig 5) are still more effective. This indicates the formation of sufficiently solid complexes which practically cannot be reduced on a platinum electrode. The second

Polarographic Determination of Platinum on a Rotating Platinum Microdisk Electrode SOV/153-2-4-7/32

wave corresponding to the hydrogen reduction is preserved in this case. The reduction potential, however, is somewhat shifted towards the more positive range. The authors try to explain this phenomenon. The determination of platinum may be disturbed by oxygen since the reduction potentials of these two elements lie close to each other. Therefore, oxygen has previously to be removed. This is achieved by letting through nitrogen for 30-40 minutes. Further disturbances are caused by the surface condition of the electrode: formation of an oxide film. Various methods for their elimination are suggested in references 24-26. Figure 6 and table 3 show the dependence of the diffusion current on the platinum concentration in the solution. Hence it appears that the average determination accuracy is ±5% in the case of large platinum amounts, and about 10% in the case of small amounts. There are 6 figures, 3 tables, and 26 references, 11 of which are Soviet.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet, Kafedra analiticheskoy khimii (Kishinev State University, Chair of Analytical Chemistry)

SUBMITTED: January 2, 1958

Card 3/3

5(4)
AUTHORS: Bardin, M. B., Lyalikov, Yu. S., Temyanko, V. S.

SOV/75-14-1-4/32

TITLE: On the Question of Using Rotating Platinum Micro-Disc Electrodes in Polarographic Analysis (K voprosu o primenenii vrashchayushchegosya platinovogo mikrodiskovogo elektroda v polyarograficheskom analize)

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 1, pp 24-27 (USSR)

ABSTRACT: Levich (Ref 2) worked out a general quantitative theory of the disc electrode. In the presence of an indifferent electrolyte the diffusion current i_d, caused by the reduction of an uncharged particle or by an ion, obeys to the following equation:

$$i_d = 0.62n F D^{2/3} \omega^{1/2} \nu^{-1/6} cS$$

where n is the number of electrons participating in the reaction, F is the Faraday constant, D is the diffusion coefficient in cm^2/sec, ω is the angular velocity of the electrode rotation (= $2\pi m$, m being the number of rotation per second),

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On the Question of Using Rotating Platinum Micro-Disc Electrodes in Polarographic Analysis

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ν the kinematic viscosity of the liquid in cm^2/sec, c ... concentration in mol/ml of the ion to be determined, ... electrode surface in cm^2. This equation ... many experiments. ... recent paper by ... micro-disc electrode ... be investigated and the possibility of ... their being applied ... polarographic analysis is discussed. The authors ... with a visual polarograph ... during ... oscillographic polarography of the type ... and ... In cell with the rotating ... is depicted and described. A small platinum ... is used as anode. In agreement with Levich's equation the ... currents at the micro- disc electrode were found to be ... proportional to the concentration and to the square root of ... electrode angular velocity. Theoretically calculated ... agree with experimental data. Basing on Levich's equation ... authors calculated the diffusion coefficient of the ion $[AuCl_4]^-$ in 0.1 n $NaNO_3$ solution.

It amounts to $1.2 \cdot 10^{-5}$ cm^2/sec and is in good agreement with data brought by publications (of 15). Experiments have shown

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On the Question of Using Rotating Platinum Micro-Disc Electrodes in Polarographic Analysis

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that micro-disc electrodes may also be employed for polarography in the flow. Furthermore, they offer several advantages as compared with rod electrodes, being simpler, much easier to clean, and therefore, having longer life. 3 different types of micro-disc electrodes are depicted. There are 5 figures, 2 tables, and 15 references, 10 of which are Soviet.

[illegible]: Kishinevskiy gosudarstvennyy universitet (Kishinev State University)

[illegible]: September 27, 1957

Card 3/3

Lyalikov, Yu. S.

AUTHOR: Bilimovich, G. N. SOV/75-14-4-30/30

TITLE: Section of Analytical Chemistry of the VIII Mendeleyev Congress on General and Applied Chemistry

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 4, pp 511-512 (USSR)

ABSTRACT: Approximately 300 persons participated in the work of the Department of Analytical Chemistry, among them representatives of various scientific research institutes, higher schools and industrial enterprises in Russia, scientists from China, Bulgaria, the CSR, Poland, Hungary, and Italy. Approximately 70 reports were heard. In his opening speech I. P. Alimarin reported on the achieved results and on modern problems of analytical chemistry. I. V. Tananayev reported on the application of physico-chemical analysis in heterogeneous systems for the solution of a series of problems of analytical chemistry. V. I. Kuznetsov reported on modern aims in the use of organic reagents; A. K. Babko showed at the example of halide and thiocyanate complexes the correlation between the stability of complexes and the position of the corresponding central atoms in the periodic system. V. M. Peshkova and V. M. Bochkova lectured on the stability

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of oximates of Cu, Co, and Ni as depending on the structure of the oxime molecule. V. F. Toropova lectured on the double character of reaction of some compounds in the formation of complexes. The problem of the application of heteropolyacids in analytical chemistry was dealt with in the lectures of Z. F. Shakhova and co-workers, and A. I. Kokorin and N. A. Polotebnova. A large number of lectures dealt with the use of new organic reagents in analysis: A. I. Busev and M. I. Ivanyutin reported on the application of dialkyl and diaryl dithiophosphoric acid for the separation of elements, A. I. Portnov used aryl arsonic acid and aryl phosphinic acid. R. P. Lastovskiy and his co-workers treated some properties of new complexons. The lectures of V. A. Nazarenko, G. G. Shitareva and A. I. Kononenko dealt with the photometric determination of a series of elements using fluorine derivates. A. I. Cherkesov lectured on the use of halochromation in analytical chemistry. R. M. Dobkina and I. E. Malyutina lectured on the determination of tantalum using differential spectrophotometry. Yu. V. Morachevskiy and L. A. Stolyarova reported on new highly sensitive analysis methods using an ultraviolet microscope. Several lectures dealt with

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methodical and theoretical problems of spectrum analysis (N. F. Zakhariy and G. A. Sheynin; E. Ye. Vaynshteyn and co-workers). N. S. Poluektov and M. N. Nikonova treated the perfection of flame photometry. Several lectures dealt with the determination of elements by polarography (S. I. Sinyakova; E. B. Rozhdestvenskaya and I. A. Yarovoy; Ya. P. Gokhshteyn). New results in using fixed electrodes were reported by I. D. Panchenko and Yu. S. Lyalikov and co-workers. The lecture of E. I. Udal'tsova and P. N. Paley treated the use of amperometric titration with two electrodes in the chemistry of uranium and thorium. N. M. Senyavin showed possibilities of predicting the conditions of chromatographic separation of elements based on their position in the periodic system. T. A. Belyavskaya reported on the use of ion exchange in the investigation of the state of substances in solutions. A. S. Vernidub and V. I. Petrashen' lectured on the chromatographic separation of a series of elements, N. G. Polyanskiy reported on adapting the properties of ion exchanger resins, P. M. Shemyakin and associates reported on the chromatographic proof of sulfanilamide preparations in liquids of the organism. G. L. Starobinets and associates treated

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the application of high polymers in chromatographic analysis. The lecture of A. A. Zhukhovitskiy and N. M. Turkel'taub, O. Shay dealt with gas chromatography. Several lectures treated the use of radioactive isotopes for the chromatographic investigation of complex formation (D. I. Ryabchikov and associates), for the investigation of the co-precipitation mechanism of ions of rare metals with sulfides (N. A. Rudnev) and for determining rare elements by means of isotope dilution (I. P. Alimarin, G. N. Bilimovich). In the field of elementary organic microanalysis the lectures of M. O. Korshun, E. M. Gel'man and V. A. Klimova with associates have to be mentioned, who treated the elaboration of rapid micromethods for the simultaneous determination of several elements from one weighed portion of boron, fluorine and silicium-organic compounds.

PHASE I BOOK EXPLOITATION SOV/4278

Lyalikov, Yuriy Sergeyevich

Fiziko-khimicheskiye metody analiza (Physicochemical Methods of Analysis) 3rd ed. Moscow, Goskhimizdat, 1960. 438 p. Errata slip inserted. 15,000 copies printed.

Ed.: K. D. Leont'yeva; Tech. Ed.: Ye. G. Shpak.

PURPOSE: This textbook is intended for students of chemistry. It may also be used by workers in research and plant laboratories.

COVERAGE: The book deals with the theory and practical application of physicochemical methods of analysis. Laboratory apparatus and instruments are described. In this edition special attention is given to descriptions of new apparatus used for physicochemical methods of analysis. Problems and practical exercises are given at the end of each chapter. The author thanks the following persons for their assistance: Doctor of Chemistry A. I. Kokorin and Candidates of Chemistry N. A. Polotebnova and M. B. Bardin, all members of the

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Physicochemical Methods of Analysis SOV/4278

Department of Analytic Chemistry, Kishinevskiy gosudarstvennyy universitet (Kishinev State University); V.P.Sychev, Docent, Optics Department, and Candidate of Physics and Mathematics; and L. V. Nazarova, Docent, Inorganic Chemistry Department, and Candidate of Chemistry, both of the same university. References accompany several of the chapters.

TABLE OF CONTENTS:

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LYALIKOV, Yu.S.

First All-Union Conference on Polarographic Analysis. Zav.lab. 26 no.5:648-649 '60. (MIRA 13:7)
(Polarograph—Congresses)

88278

S/032/61/027/001/003/037
B017/B054

9,4300 (1043, 1138, 1143)

AUTHORS: Safronkova, N. N. and Lyalikov, Yu. S.

TITLE: Chemical Analysis of Semiconductor Alloys in the System In - Sb - Te

PERIODICAL: Zavodskaya laboratoriya, 1961, Vol. 27, No. 1, pp. 21-22

TEXT: A complexometric method of determining indium in the presence of antimony and tellurium by redox reactions has been developed. Tellurium is reduced in acid medium by iodine, and antimony (III) is determined by titration with bromate using methyl red as indicator. Preliminary tests were made with synthetic mixtures of spectroscopically pure indium, antimony, and tellurium. The sensitiveness of tellurium determination in the presence of antimony was found to be ± 0.5%. Indium determination in the presence of antimony and tellurium was possible with an accuracy of ± 0.5%. Indium was determined at pH 8-10 by titration with 0.01 M Trilon B solution and with the use of eriochrome black as indicator until the color changed from violet to blue. Compounds and alloys in the system In - Sb - Te were studied. There are 4 figures.

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Chemical Analysis of Semiconductor Alloys in the System In - Sb - Te

S/032/61/027/001/003/037
B017/B054

ASSOCIATION: Institut khimii Moldavskogo filiala Akademii nauk SSSR (Institute of Chemistry, Moldavian Branch of the Academy of Sciences USSR)

Card 2/2

LYALIDOV, Yu.S., prof., doktor

"Electrode processes and research methods in polarography" by IU.K.Delimarskii, A.V.Gorodyskii. Reviewed by IU.S.Lialidov. Zav.lab. 27 no.7:918 '61. (MIRA 14:7)
(Polarography) (Delimarskii, IU.K.) (Gorodyskii, A.V.)

S/137/62/000/012/085/085
A006/A101

AUTHORS: Lyalikov, Yu. S., Kopanskaya, L. S., Safrokova, N. N.

TITLE: Chemical and physico-chemical methods for determining indium, antimony, and tellurium in semiconductor alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 19 abstract 12K118 (In collection: "Fizika", Leningrad, 1962, 26 - 30)

TEXT: The authors developed macro- and microchemical methods of determining In, Sb and Te, without separating same, in semiconductor alloys. The mean error does not exceed ± 0.5%. For In determination, 5 ml 10%-solution of Seignette's salt, 10 - 15 ml buffer mixture (pH 8 - 10) and eriochrome black tracer, are added to the solution under investigation. The mixture is heated to the boiling point and titrated with trilon B until it turns blue. To determine Sb, 5 - 10 ml HCL (1:4) and one drop of methyl red tracer are added to the aliquot portion of the solution, which is titrated in 0.1 n. $KBrO_3$ solution until it turns yellow. To determine Te, 1 - 2 g KI is added to the aliquot portion of the

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Chemical and physico-chemical methods for..

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A006/A101

solution which is then titrated with Na thiosulfate in the presence of starch. To determine the aforementioned substances, physico-chemical methods were also developed (potentiometrical, polarographical and colorimetrical methods).

L. Vorob'yeva

[Abstracter's note: Complete translation]

Card 2/2

PODRAZHANSKAYA, Ye.I.; LYALIKOV, Yu.S., doktor khim.nauk, prof., nauchnyy red.; MATKOVSKAYA, N.A., red.; MANDEL'BAUM, M.F., tekhn. red.

[Polarography; index of literature on polarographic study methods, 1950-1957]Poliarografiia; ukazatel' literatury po poliarograficheskim metodam issledovaniia, 1950-1957 gg. Kishinev, 1960. 72 p. (MIRA 16:2)

1. Akademiya nauk SSSR. Moldavskiy filial. Nauchnaya biblioteka. (Bibliography--Polarography)

ACCESSION NR: AR3000205 S/0081/63/000/006/0136/0136

SOURCE: RZh. Khimiya, Abs. 6G139

AUTHOR: Lyalikov, Yu. S.; Kopanskaya, L. S.

TITLE: Analysis of microsamples of indium-antimony-tellurium base semiconductor alloys

CITED SOURCE: Izv. AN MoldSSR, no. 12(90), 1961, 47-55

TOPIC TAGS: microsamples, indium-antimony-tellurium, semiconductor alloys

TRANSLATION: A microanalytical procedure has been developed for binary and ternary In-Sb-Te semiconductor alloys (sample of less than or equal to 30 mg). In sup 3+ determined complexometrically, Sb sup 3+ by bromide-bromate titration, Te sup 4+ iodometrically. Sample of about 30 mg is fused in microcrucible with 150 - 300 mg K-bisulfate and the melt is leached by heating with 3 ml mixed acid (25 ml sulfuric acid + 45 ml HCl + 180 ml water). The resultant solution is transferred with the use

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of the same acid to a 10 ml flask and brought up to the mark. To determine In: to 1 ml sample solution added equal volume of 10 K-Na-tartrate solution, 0.5 ml ammonium chloride buffer of pH 8-10; heated at 75° and titrated with 0.01 M solution of Complexon III to Eriochrome Black T. To determine Sb: to 1 ml of solution being analyzed is added 1 ml HCl (1:1), heated at 60° and titrated with 0.05 N solution of bromide-bromate to Methyl Red (the indicator is added at the end of titration). To determine Te: to 1 ml of solution being analyzed is added 1 ml HCl (1:1), an excess of dry KI, and the liberated iodine is titrated with 0.1 N solution of Na-thiosulfate, in the presence of starch. Titers of the solutions are determined under the same conditions against solutions of salts prepared from elements of highest degree of purity. In titrations it is mandatory to take into account indicator error. Reproducibility of determinations is entirely satisfactory. Average relative error less than 3%. On analysis of a sample of less than 1 mg, Sb and Te are titrated potentiometrically. To determine Sb, to solution of the sample are added 3 ml HCl (1:1), diluted with water to about 20 ml, and titrated with bromide-bromate solution, with Pt indicator electrode and saturated calomel electrode, using LP-58 potentiometer. In determining Te, to the solution of the sample are

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ACCESSION NR: AR3000205

added 3 ml HCl (1:1), excess of KI, diluted with water to 20 ml and titrated with solution of Na-thiosulfate. Ablank titration is carried out concurrently. Error of determination of Sb less than 4.7%; of Te, less than 6.1%. The method is suitable for analysis of films of semiconductor materials (to remove the film from the glass it is treated with molten K-bisulfate and weight of sample is determined from decrease in weight of glass), and of microsamples obtained by drilling from different phases of semiconductor materials. N. Chudinova

DATE ACQ: 16May63 ENCL: 00 SUB CODE: 00

Card 3/3

KOPANSKAYA, L.S.; LYALIKOV, Yu.S.

Photocolorimetric analysis of the system indium - antimony - tellurium.
Izv. AN Mold. SSR no.10:31-37 '62. (MIRA 17:12)

BODYU, V.I.; KOZLOVA, I.V.; LYALIKOV, Yu.S.

Pulse polarographic method of analysis (survey). Zav. lab. 28 no.9:1042-1047 '62. (MIRA 16:6)

(Polarography)

BODYU, V.I.; KOZLOVA, I.V.; SISTER, Yu.D.; LYALIKOV, Yu.S.

Determination of the end point in acid-base titration by means of tensammetric peaks. Zhur. anal. khim. 18 no.5: 659-661 My'63. (MIRA 17:2)

1. Institut khimii AN Moldavskoy SSR, Kishinev.

BODYU, V.I.; LYALIKOV, Yu.S.

Pulse polarographic determination of some aldehydes. Zhur.anal.khim. 18 no.8:1007-1011 Ag '63. (MIRA 16:12)

1. Institute of Chemistry, Academy of Sciences, Moldavian S.S.R., Kishinev.

LYALIKOV, Yu.S.; MADAN, L.G.; BODYU, V.I.

Pulse polarography on solid electrodes. Zav.lab. 29 no.11: 1289-1291 '63. (MIRA 16:12)

1. Institut khimii AN Moldavskoy SSR.

LYALIKOV, Yu. S.; BODYU, V. I.; MADAN, L. G.

"Alternating current polarography at the stationary electrodes."

report submitted for 3rd Intl Polarography Cong, Southampton, 19-25 Jul 64.

Univ of Kiev.

L 6695-65 EWT(m)/EWP(q)/EWP(b) RAEM(t) RDW/JD/MLK
ACCESSION NR: AT4044567 S/0000/64/000/000/0134/0142 48 47

AUTHOR: Lyalikov, Yu. S.; Kopanskaya, L. S.; Molodyan, I. P.; Radautsan, S. I. (Candidate of physico mathematical sciences)

TITLE: Microchemical phase analysis of some semiconductor alloys of the system In - Sb - Te

SOURCE: AN MoISSR. Institut fiziki i matematiki. Issledovaniya po poluprovodnikam; novyye poluprovodnikovyye materialy* (Semiconductor research; new semiconductor materials). Kishinev, Gos. izd-vo Kartya Moldovenyaske, 1964, 134-142

TOPIC TAGS: phase analysis, microchemical phase analysis, semiconductor alloy, In - Sb - Te alloy, potentiometric titration, x-ray structural analysis, microhardness, microstructure

ABSTRACT: Microanalysis of the phase composition of In-Sb-Te alloys was carried out by potentiometric titration methods; antimony, tellurium, and indium were determined using methods previously described. Micro-samples of the different phases of this system were obtained with a drilling attachment to a microhardness meter base, using drills 0.1 mm in diameter. The phase samples obtained in this manner were not contaminated by other phases provided the drilling was not deeper than the phase diameter of 0.2 mm. A comparison of the single phase alloy In_4SbTe_3

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ACCESSION NR: AT4044567

with the ternary compound In_4SbTe_3 showed that the error of element determination did not exceed 2% (abs.). Molar calculation by chemical analysis confirmed the alloy composition. The three-phase alloy $3In_3Sb_3 \cdot In_2Te_3$ was then investigated by this method. Only the gray and light gray phases could be analyzed microchemically. Results indicated that the gray phase contained all three elements and represented the solid solution of In Sb, while the light gray phase revealed only indium and tellurium. It was shown that this alloy did not contain its original compounds InSb and In_2Te_3. Ingots obtained after zone leveling of the alloy $In_3Sb_3 \cdot In_2Te_3$ were also analyzed. The beginning, middle and end of the ingot were checked for phases, microhardness, lattice type and lattice constant. Microchemical analysis showed that the ratio of the elements in the beginning of the ingot was close to that in the ternary compound In_4SbTe_3. Analysis of the middle showed a decrease in indium and an increase in antimony. The final section consisted of phases corresponding to InSb and also In_4Sbte_3. These data agree with micro and x-ray structural analyses. Orig. art. has: 5 figures and 3 tables.

ASSOCIATION: Institut fiziki i matematiki AN MolSSR (Institute of Physics and Mathematics, AN Mol.SSR)

SUBMITTED: 13Dec63 ENCL: 00 SUB CODE: MM

Card 2/2 NO REF SOV: 008 OTHER: 000

L 27911-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD
ACCESSION NR: AP4011978 S/0073/64/030/001/0091/0095

AUTHORS: Lyalikov, Yu. S.; Kopanskaya, L. S.

TITLE: A fast method for determining In, Sb and Te in semiconductor alloys on an alternating current polarograph

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 30, no. 1, 1964, 91-95

TOPIC TAGS: In Sb Te system, pulse polarograph, a c polarograph, semiconductor alloy, thin film, indium, antimony, tellurium

ABSTRACT: A pulse polarographic method is developed for the analytical control of the synthesis of new semiconductors with given characteristics. Indium, antimony and tellurium can be determined in quantities in the order of 10^{-6} mole/liter of IN HCl electrolyte in In-Sb thin layers or in InSb-InTe semiconductor alloys. Preliminary separation of tellurium from indium is required only if the Te/In ratio is smaller than 1/100. This method has a high sensitivity and resolution power as well as some other advantages in comparison to other methods for defining the system In-Sb-Te. An a c polarograph of type KAP-225u. was used in this study. All three elements can be polarographed in one solution without the necessity

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L 27911-65
ACCESSION NR: AP4011978

of first removing the oxygen. Orig. art. has: 3 figures and 4 tables

ASSOCIATION: Institut khimii AN MSSR (Institute of Chemistry, AN MSSR)

SUBMITTED: 07Jan63 ENCL: 00

SUB CODE: Ss, GP NR REF SOV: 013 OTHER: 000

Card 2/2

LYALIKOV, Yu.S.; SISTER, Yu.D.

Pulsopolarographic determination of calcium and magnesium.
Zav. lab. 30 no.9:1073-1074 '64. (MIRA 18:3)

1. Institut khimii AN Moldavskoy SSR.

LYALIKOV, Yu.S.; RADAUTSAN, S.I.; KOPANSKAYA, L.S.; MOLODYAN, I.P.

Synthesis of complex semiconductor phases and their chemical analysis. Vest. AN SSSR 34 no.9:75-78 S '64.

(MIRA 17:10)

1. Institut fiziki i matematiki AN Moldavskoy SSR i Institut khimii AN Moldavskoy SSR. 2. Chlen-korrespondent AN Moldavskoy SSR.

LYALIKOV, Yu.S.; SOLONAR', A.S.

Polarographic determination of hexachlorobutadiene. Zhur. anal. khim. 20 no. 11:1228-1230 '65 (MIRA 19:1)

1. Kishinevskiy gosudarstvennyy universitet. Submitted November 17, 1964.

PODOLENKO, A.A.; CHIKRYZOVA, Ye.G.; LYALIKOV, Yu.S.

Coulometric determination of nitroso compounds. Ukr. khim. zhur. 31 no.8:844-846 '65. (MIRA 18:9)

1. Institut khimii AN Moldavskoy SSR.

MADAN, L.G.; LYALIKOV, Yu.S.; BODYU, V.I.

Pulse polarographic determination of metals on solid electrodes.
Zav.lab. 31 no.10:1182-1183 '65. (MIRA 19:1)

1. Institut khimii AN Moldavskoy SSR.

LYALIKOV, Yu.S.; BODYU, V.I.; KOZLOVA, I.V.

Pulse polarographic method of determining zinc. Zav.lab. 31 no.10:1190 '65. (MIRA 19:1)

1. Institut khimii AN Moldavskoy SSR.

LYALIKOV, Yuriy Sergeyevich; VASKEVICH, D.N., red.

[Physicochemical methods of analysis] Fiz'ko-khimicheskie metody analiza. Moskva, Khimiia, 1964. 557 p. (MIRA 18:10)

ACC NR: AP6036390 SOURCE CODE: UR/0032/66/032/011/1319/1320

AUTHOR: Lyalikov, Yu. S.; Kolchina, K. Ye.

ORG: Institute of Chemistry, MoldSSR (Institut khimii AN MoldSSR)

TITLE: Determination of the main components in semiconductor compounds of indium with arsenic and phosphorus

SOURCE: Zavodskaya laboratoriya, v. 32, no. 11, 1966, 1319-1320

TOPIC TAGS: indium containing alloy, arsenic ~~containing alloy~~ compound, phosphorus ~~containing alloy~~ compound, quantitative analysis

ABSTRACT: The article describes a method and the results of an analysis of the binary alloys InP and InAs and the ternary alloy InP-InAs. To bring arsenic and phosphorus into the pentavalent state, weighed portions were dissolved in a flask with nitric acid or with a mixture of nitric and hydrochloric acids. Determination of indium was done by the direct volumetric complexometric method using xyxyl orange as the indicator. In the analysis of the alloys InP and InAs the results were on the low side; this is thought to be connected with the formation, at a certain pH, of indium arsenate and phosphate. Adding ammonium citrate salts to the solution before titration promotes solution of the precipitate which falls out and aids the normal titration of indium. In addition, the addition of this reagent helps to establish the required pH of the

Card 1/2 UDC: 543.7

ACC NR: AP6036390

solution, 3.5. In analysis of the InP alloy, phosphorus was determined immediately after the determination of indium in the same solution, by the magnesia weight method. In the analysis of the InAs alloy, after determination of indium, AsO_4^{3-} was determined in the same solution by the iodometric method. In the analysis of the InP-InAs system, As^{5+} was reduced to As^{3+} according to the reaction:

$$AsO_4^{3-} + 2J^- + 2H^+ \rightleftarrows AsO_3^{3-} + H_2O + J_2.$$

thus paving the way for the subsequent determination of PO_4^{3-} in the presence of AsO_3^{3-}. The phosphorus content was determined after determination of the arsenic, by the magnesia method. All experimental results are shown in tabular form. Orig. art. has: 1 table.

SUB CODE: 07, 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 003

Card 2/2

L 12155-66 EWT(d) IJP(c)

ACC NR: AP6000012 SOURCE CODE: UR/0208/65/005/006/0979/0990

44,55 44,55 29 26 B

AUTHORS: Birger, Ye. S. (Moscow); Lyalikova, N. B. (Moscow)

ORG: none

TITLE: Finding solutions satisfying a given condition at infinity for systems of ordinary differential equations. 1

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 5, no. 6, 1965, 979-990

TOPIC TAGS: differential equation, boundary value problem , nonlinear equation, first order differential equation, Cauchy problem

ABSTRACT: The authors consider the system

$$X' = t^r AX + t^r f(t, X) + t^r g(t), \qquad (1)$$

$$t_0 \leqslant t < \infty,$$

of nonlinear first order equations, where r is a nonnegative integer, A is a constant matrix all of whose eigenvalues have positive real parts, f(t,X) is defined and continuous for |X| small and $t \geq t_0$, g(t) is defined and continuous for $t \geq t_0$, $\lim_{t \to \infty} g(t) = 0$. Considering the Cauchy problem at ∞, they show on the basis of their results that one can solve the boundary value problem for linear systems with

UDC: 518:517.91/.94

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L 12155-66

ACC NR: AP6000012

3

type II singularity as $t \to \infty$ with a condition of boundedness of solutions at the right end of $[t_0, \infty)$, and some condition at t_0. A version of this problem on the finite interval $[t_0, T]$ is also considered. The authors express their gratitude to A. A. Abramov for stating the problem and for much valuable advice. Orig. art. has: 25 formulas.

SUB CODE: 12/ SUBM DATE: 04Jan65/ ORIG REF: 003/ OTH REF: 002

H/W

Card 2/2

L 3/1/5-67 EWT(d) IJP(c)

ACC NR: AP6018627 SOURCE CODE: UR/0208/66/006/003/0446/0453

AUTHOR: Birger, Ye. S.; Lyalikova, N. B. 24 B

ORG: none

TITLE: On finding solutions with a given condition on infinity for several systems of ordinary differential equations. II.

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 6, no. 3, 1966, 446-453

TOPIC TAGS: ordinary differential equation, Cauchy problem, boundary value problem, perturbation theory, approximation method

ABSTRACT: On the basis of Part I, 1965, 5, No. 6, 979-990), which treated the Cauchy problem in infinity for several nonlinear systems of form

$$X' = t^r A(t)X + t^r f(t),$$

under the assumption that matrix A_0 does not have purely imaginary eigenvalues, an extension is made to the case where A_0 does have simple eigenvalues on the imaginary axis. In (1) the functions $A(t)$ and $f(t)$ are continuous on $[t_0, \infty)$ and for $t \to \infty$ have the following asymptotic representation:

$$A(t) \sim \sum_{k=0}^{\infty} \frac{A_k}{t^k}, \quad f(t) \sim \sum_{k=0}^{\infty} \frac{f_k}{t^k}.$$

Card 1/2 UDC: 517.91/.94

L 07178-67

ACC NR: AP6018627 O

A practical solution of this problem is offered by the method of projection from infinity to a finite point T, thus reducing it to an equivalent boundary value problem on the interval $[t_0, T]$. The extension is made practicable by the possibility of using perturbation theory to determine corrections in the non-multiple eigenvalues of A_0 which lie on the imaginary axis. This means that one can find a linear manifold of bounded solutions of system (1) by considering only a finite number of matrices A_k in the asymptotic representation of $A(t)$ for large t. Orig. art. has: 36 formulas.

SUB CODE: 12/ SUBM DATE: 22Jul65/ ORIG REF: 001/ OTH REF: 000

Card 2/2 egh

LYALIKOVA, N.N.

Some properties of microflora of silt and their role in balneologic properties in silt. Trudy Inst.mikrobiol. no.4:202-206 '55. (MLRA 9:1)

(MUD THERAPY,
bacteriol. factor in ther. value of silt)
(BACTERIA,
in silt, balneol.aspects)

USSR/Microbiology - General Microbiology.

Abs Jour : Ref Zhur - Biol., No 12, 1958, 52741

Author : Lyalikova, N.N.

Inst :

Title : A Study of the Assimilation Process of Free Carbonic Acid by Purple Sulfobacteria in Lake Beloved.

Orig Pub : Mikrobiologiya, 1957, 26, No 1, 92-98.

Abstract : In 1954 a study was conducted on the ecology of purple sulfobacteria (PS) in Lake Beloved (Vladimir region), which is characterized by PS mass production from the genus Chromatium (up to 170-000 cells per ml) at a depth of 12-13 m, where the border of oxygen and hydrosulfite zones is located. By exposing light and dark flasks with cultures of Scenedesmus it was established that photosynthesis in the lake is possible up to a depth of 17 m. At a depth of 13-14 m the PS have a sufficient amount of light and H_2S. Laboratory experiments with a cumulative culture of PS

IVANOV, M.V.; LYALIKOVA, N.N.; KUZNETSOV, S.I.

Role of Thiobacillus in the weathering of rocks and sulfide ores [with summary in English]. Izv.AN SSSR Ser.biol. 23 no.2:183-191 Mr-Ap '58. (MIRA 11:4)

1. Institut mikrobiologii AN SSSR.
(THIOBACILLUS) (WEATHERING)

LYALIKOVA, N.N.

Studies on chemosynthetic processes in Thiobacillus ferroxidans [with summary in English]. Mikrobiologiia 27 no.5:556-559 S-O '58 (MIRA 11:12)

1. Institut mikrobiologii AN SSSR.
(THIOBACILLUS, metab.
chemosynthesis in Thiobacillus ferrooxidans (Rus))

SOV/180-59-1-25/29

AUTHORS: Zarubina, Z.M., Lyalikova, N.N. and Shmuk, Ye.I. (Moscow)

TITLE: Investigation of the Microbiological Oxidation of the Pyrite of Coal (Issledovaniye mikrobiologicheskogo okisleniya pirita uglya)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 1, pp 117-119 (USSR)

ABSTRACT: This is a preliminary communication on work carried out jointly by the Laboratoriya Obogashcheniya IGI AN SSSR (Enrichment Laboratory of the IGI AS USSR) and the Institut Mikrobiologii AN SSSR (Institute of Microbiology of the AS USSR) on the oxidation of coal pyrites by microbiological methods. The work was started in 1957 as part of the general study by the former organization of methods of oxidizing coal pyrites for desulphurization. A culture of Thiobacillus ferro-oxidans was prepared and added to coal samples. In one of each pair of samples the bacteria were killed. Analysis for sulphur after 10, 20 and 30 days showed that in these no desulphurization occurred in contrast to the samples with live bacteria (table). The fineness of the coal and the age of the

Card 1/2

Investigation of the Microbiological Oxidation of the Pyrite of Coal

culture had some effect on the oxidation.
A.Z. Yurovskiy and S.I. Kuznetsov advised on the work.
There are 1 table and 7 English references.

SUBMITTED: July 12, 1958

Card 2/2

LYALIKOVA, N. N.: Master Biol Sci (diss) -- "The physiology and ecology of Thiobacillus ferrooxidans in connection with its role in the oxidation of sulfide ores". Moscow, 1959. 16 pp (Inst of Microbiology of the Acad Sci USSR), 200 copies (KL, No 11, 1959, 117)

LYALIKOVA, N.N.

Participation of Thiobacillus ferrooxidans in the oxidation of sulfide ores in pyrite deposits of the Central Urals. Mikrobiologiia 29 no.3: 382-387 My-Je '60. (MIRA 13:7)

1. Institut mikrobiologii AN SSSR.
(URAL MOUNTAINS—PYRITES) (THIOBACILLUS)

LYALIKOVA, N.N.

Physiology and ecology of Thiobacillus ferrooxidans with reference to its role in the oxidation of sulfide ores. Mikrobiologiia 29 no.5:773-779 S-O '60. (MIRA 13:11)
(IRON BACTERIA) (SULFIDES)

LYALIKOVA, N.N.

Role of bacteria in the oxidation of sulfide ores. Trudy Inst.mikrobiol. no.9:134-143 '61. (MIRA 15:5)

1. Institut mikrobiologii AN SSSR, Moskva.
(Sulfides)
(Mine water--Microbiology)

LYALIKOVA, N.N.

Role of bacteria in the oxidation of sulfide ores in the copper-nickel beds of the Kola Peninsula. Mikrobiologiia 30 no.1:135-139 Ja-F '61. (MIRA 14:5)

1. Instituta mikrobiologii AN SSSR.
(KOLA PENINSULA--SULFIDES--MICROBIOLOGY)

KUZNETSOV, S.I.; IVANOV, M.V.; LYALIKOVA, N.N.; IMSHENETSKIY, A.A., otv. red.; SHCHERBAKOV, A.P., red. izd-va; SHEVCHENKO, G.N., tekhn. red.

[Introduction to geological microbiology] Vvedenie v geologicheskuiu mikrobiologiiu. Moskva, Izd-vo Akad. nauk SSSR, 1962. 238 p. (MIRA 15:3)

1. Chlen-korrespondent Akademii nauk SSSR (for Imshenetskiy).
(Geology) (Microbiology)

IVANOV, V.I.; LYALIKOVA, N.N.

Taxonomy of iron-oxidizing Thiobacilli. Mikrobiologiia 31 no.3:468-469 My-Je '62. (MIRA 15:12)

1. Institut mikrobiologii AN SSSR i Ural'skoye otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo geologo-razvedochnogo instituta.

(BACTERIA, SULFUR)

LYALIKOVA, N.N.; KULIKOVA, M.F.

Leaching of rare elements from sulfide ores under the influence of bacteria. Dokl. AN SSSR 164 no.3:674-676 S '65.
(MIRA 18:9)

1. Institut mikrobiologii AN SSSR i Institut mineralogii i geokhimii redkikh elementov. Submitted November 28, 1964.

LYALIKOVA, N.N.; SOKOLOVA, G.A.

Microbiological characteristics of some ore deposits of central Kazakhstan. Mikrobiologiia 34 no.2:335-343 Mr-Ap '65.
(MIRA 18:6)

1. Institut mikrobiologii AN SSSR.

LIPIS, B.V., kand.tekhn.nauk; LYALIKOVA, R.Yu.; CHERNICHUK, L.L.

Spectrophotometric method for determining tanning and coloring substances in grape must and wine. Trudy MTIPP 44:109-114 '64.
(MIRA 18:11)

LIPIS, B.V., kand.tekhn.nauk; LYALIKOVA, R.Yu.; DUGAYEVA, L.I.

High-frequency titration of wine and juices. Trudy MNIIPP 4:115-123 '64. (MIRA 18:1)

POLOTEBNOVA, N.A.; LYALIKOVA, R.Yu.

Photocolorimetric determination of dionine. Apt. delo 10 no. 1:58-59 Ja-F '61. (MIRA 14:2)
(COLORIMETRY) (MORPHINE)

LIPIS, B.V.; MAMAKOV, A.A.; YEPIFANOV, P.V.; Prinimali uchastiye: SPEKTOR, L.A.; LYALIKOVA, R.Yu.

Deaeration of grape juice. Trudy MNIIPP 2:81-86 '62. (MIRA 16:4)
(Grape juice)

LIPIS, B.V.; DUGAYEVA, L.I.; LYALIKOVA, R.Yu.

Spectrophotometric method of determining the quality of anticorrosive epoxy resin coatings on aluminum. Trudy MIIPP 5:79-86 '64. (MIRA 19:1)

30417
S/058/61/000/009/039/050
A001/A101

9,4177 (1138)
26.2421

AUTHORS: Simashkevich, A.V., Lyalikova, T.Yu.

TITLE: Temperature dependence of zinc selenide photoconductivity

PERIODICAL: Referativnyy zhurnal. Fizika, no. 9, 1961, 225, abstract 9E380 ("Uch. zap. Kishinevsk. un-t", 1960, v. 55, 21 - 23)

TEXT: In order to clarify the processes taking place in ZnSe being subjected to illumination, the temperature dependence of photoconductivity of ZnSe layers obtained by atomized coating in vacuum and annealed in air was investigated. The temperature dependence of photoconductivity was obtained in both the atmosphere from room temperature to +300°C and in vacuum from the liquid O_2 temperature to +150°C. In both cases, with rising temperature photocurrent increases, attains a maximum and then drops (in the atmosphere the maximum is displaced toward higher temperatures). The magnitude of photocurrent-and dark current at measurements in vacuum is higher than in the atmosphere; this is apparently explained by disappearance of traps, created by adsorbed air, in the ZnSe layer in vacuum. The growth of photo-conductivity in ZnSe occurs in the

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S/058/61/000/009/039/050
A001/A101

Temperature dependence of zinc selenide ...

temperature range corresponding to transition from extrinsic to intrinsic conductivity; it is probably connected with an increase in the life time of carriers.

F. Nad'

[Abstracter's note: Complete translation]

Card 2/2

LYALIKOVA, V. S.: Master Med Sci (diss) -- "The state of the organ of vision in syphilis patients with protracted observation". Tomsk, 1958. 18 pp (Tomsk Med Inst), 200 copies (KL, No 6, 1959, 145)

LYALIKOVA, V.S.

State of the eye in patients with syphilis during prolonged observation. Vest.derm.i ven. 33 no.6:46-51 N-D '59.
(MIRA 13:12)

(SYPHILIS) (EYE)

BERCH, P.F. [Birch, P.F.]; LYALIN, A.A. [translator]

Use of the regression method in compounding rubber mixtures.
Kauch. i rez. 19 no. 11:58-63 N '60. (MIRA 13:11)
(Rubber)

ACCESSION NR: AP4038905 S/0138/64/000/005/0001/0004

AUTHORS: Lyalin, A. A.; Shvarts, A. G.; Buyko, G. N.

TITLE: Application of calculated characteristic properties of rubber mixtures

SOURCE: Kauchuk i rezina, no. 5, 1964, 1-4

TOPIC TAGS: internal friction, rubber plasticity, impregnated mixture, activation energy, polymer, viscous flow, intermolecular interaction, vitrification temperature

ABSTRACT: The temperature dependence of the hardness index and modulus of internal friction in rubber, determined on a Cornfeld instrument, were investigated experimentally. Hardness measurements permit the determination of original rubber plasticity for a specific mixture, and friction measurements shed some light on the heat-generating characteristics of rubber. Both impregnated and nonimpregnated mixtures of various rubber bases: NK, SKI, butyl-300, SKS-30ARM and SKN-26 were investigated (properties of each specimen are given in tabular form). Measurements were made in the temperature range 20-100C, and the results are presented graphically as $\lg \eta$ versus $1/T$ (η - viscosity). The results agree closely with the Arrhenius formula

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ACCESSION NR: AP4038905

$$\eta_T = \eta_0 \cdot e^{U/RT}$$

where η_T - viscosity at absolute temperature T, U - nominal activation energy of polymer in viscous flow, R - gas constant, η_0 - constant. The magnitude of U was was calculated for the hardness index of raw mixture specimens and for internal friction modulus. U is found to depend on the nature of the polymer, increasing (in general) with an increase in intermolecular interactions and increase in vitrification temperature. The initial plasticity of the rubber does not affect the temperature dependence of the mixture hardness. Orig. art. has: 5 figures, 2 tables, and 1 formula.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promy*shlennosti (Scientific Research Institute of the Tire Industry)

SUBMITTED: 00 DATE ACQ: 05Jun64 ENCL: 00

SUB CODE: MT NO REF SOV: 009 OTHER: 002

Card 2/2

LYALIN, D.

Improving the design of taxicabs. Avt.transp. 40 no.12:32-33 D '62. (MIRA 15:12)
(Taxicabs)

LYALIN, D.; RZADKOWSKI, Jan [translator]

Soviet-made passenger cars. Horzy techn 18 no.4:12-13 Ap '65.

1. Chief Specialist of the State Committee for the Construction of Automobiles and Machinery for Farming Purposes at the State Planning Commission of the U.S.S.R.

KAGANOVICH, Z. I.; LYALIN, D. V. ; LISHANSKIY, I. M.

Engrs.

The Lubrication of the Stamping Hammers

Vest Mash p. 30, Sep 51

LYALIN, D.V.; ATOYAN, K.M.; YUSHMANOV, A.N.

Passenger cars and motorbuses at the Geneva Automobile Exhibition in 1960. Avt.prom. no.8:36-43 Ag '60. (MIRA 13:8)

(Geneva--Exhibitions) (Automobiles) (Motorbuses)

LYALIN, F., inzh., BYKOV, A., inzh.

Organization of the transportation of mineral building materials should meet current demands. Rech. transp. 24 no.7:15-16 '65. (MIRA 18:8)

1. Tsentral'nyy nauchno-issledovatel'skiy institut ekonomiki i ekspluatatsii vodnogo transporta.

LYALIN, F.

Separation of a gravel and sand mixture in hydraulically mechanized unloading. Rech. transp. 21 no.10:15-18 O '62. (MIRA 15:10)

1. Nachal'nik moskovskogo Zapadnogo porta.

(Hydraulic conveying) (Separators (Machines))

LYALIN, F.I.

LYALIN, F.I.

Operation of crewless barges. Rech.transp. 16 no.12:35-36 D '57.
(MIRA 11:1)

1.Glavnyy inzhener Zapadnogo porta Moskovskogo parokhodstva.
(Barges)

LYALIN, F.I.

Hydromechanical unloading of sand from barges. Mech.transp. 17 no.9:13-16 S '58. (MIRA 11:11)

1. Glavnyy inzhener Moskovskogo Zapadnogo porta.
(Sand--Transportation) (Loading and unloading)

BUKHARIN, Yevgeniy Mikhaylovich; LYALIN, Feliks Isayevich; SANDLER, Polina Yevseyevna, SHLYAPIN, Igor' Andreyevich; ROKOTYAN, S.S., red.; DEMKOV, Ye.D., red.; BORUNOV, N.I., tekhn. red.

[Survey and comparison of foreign standards for designing the structural section of electric power transmission systems] Obzor i sravnenie zarubezhnykh norm na proektirovanie konstruktivnoi chasti linii elektroperedachi. Pod obshchei red. S.S. Rokotiana. Moskva, Gos. energ. izd-vo, 1960. 143 p. (MIRA 14:5)

(Electric power distribution)

ARTEM'YEV, Aleksey Vasil'yevich; VOSKRESENSKIY, Aleksandr Alekseyevich; ITTENBERG, I.A., kand. tekhn. nauk, retsenzent; LYALIN, F.I., inzh., red.; MAKRUSHINA, A.N., red. izd-va; BODROVA, V.A., tekhn. red.

[Loading and unloading machines and mechanisms] Pogruzochno-razgruzochnye mashiny i mekhanizmy. Moskva, Izd-vo "Rechnoi transport," 1961. 409 p. (MIRA 14:7)
(Conveying machinery) (Cranes, derricks, etc.)
(Loading and unloading)

LYALIN, F.I., inzh.; NOVGORODTSEV, B.P., inzh.; SHERENTSIS, A.N., red.

[Designs of the supports and wires of a.c. superhigh voltage power transmission lines, 1961-1963] Konstruktsii opor i provodov linii elektroperedachi peremennogo toka sverkhvysokogo napriazheniia, 1961-1963. Moskva, 1964. 68 p. (MIRA 18:2)

1. Akademiya nauk SSSR. Institut nauchnoy informatsii.

ACC NR: AP6025684 (N) SOURCE CODE: UR/0413/66/000/013/0150/0150

INVENTOR: Lyalin, F. I.

ORG: None

TITLE: A steering unit for guiding docking vessels. Class 65, No. 183617

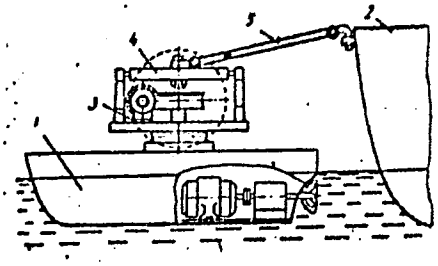
SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 150

TOPIC TAGS: marine equipment, auxiliary ship, remote control

ABSTRACT: This Author's Certificate introduces a steering unit for guiding docking vessels. The unit consists of a motor-propeller assembly set in the bow of the vessel and remotely controlled from a tug. Vessel control efficiency is improved under conditions of rotary motion, and coupling reliability is increased between the vessel and the motor-propeller unit by mounting a plate which can turn horizontally on the deck of the motor-propeller unit with a bar connecting the bow of the vessel being towed by hinge and link couplings.

Card 1/2 UDC: 629.12-42

ACC NR: AP6025684



1--motor-propeller assembly; 2--bow of docking vessel; 3--attachment for turning the motor-propeller assembly; 4--turning plate; 5--rods

SUB CODE: 13/ SUBM DATE: 20Apr64

Card 2/2

BUKHARIN, Yevgeniy Mikhaylovich; KOLYAKOV, Ayzik Mordkovich; KURNOSOV, Aleksey Ivanovich; LYALIN, Feliks Isayevich; TROFIMOV, Viktor Ivanovich; LEVIN, L.E., red.

[Designing structures for electric transmission lines using the method of limiting states] Proektirovanie stroitel'nykh konstruktsii linii elektroperedachi po predel'nym sostoianiiam. Pod red.E.M.Bukharina. Moskva, Energiia, 1965. 111 p. (MIRA 18:11)

LYALIN, G.M.

Attachment to the TsPA machine for sawing veneer. Der. prom. 12 no.10:20 O '63. (MIRA 16:10)

LYALIN, G.M.

Working of parts with semioval profiles on the FK-1 carrousel-type milling machine. Der. prom. 12 no.8:23 Ag '63. (MIRA 16:11)

1. Sarapul'skiy lesokombinat.

L 17782-63 EWP(j)/EPF(c)/EWT(m)/BDS ASD Pc-4/Pr-4 RM/WW/MAY
S/0051/63/015/002/0253/0261

ACCESSION NR: AP3005850

AUTHOR: Lyalin, G.N.; Koby*shev, G.I.

TITLE: Luminescence of and intracomplex energy transfer in uranyl phthalocyanine

SOURCE: Optika i spektroskopiya, v.15, no.2, 1963, 253-261

TOPIC TAGS: luminescence, energy transfer, uranyl ion, phthalocyanine

ABSTRACT: The purposes of the work were to investigate the luminescence of the complex compound of uranyl with phthalocyanine in the expectation that there would be observed the spectrum characteristic of metal-containing phthalocyanines and possibly the luminescence of the uranyl cation itself, and to obtain evidence for intracomplex energy transfer. The uranyl-phthalocyanine complex was synthesized by V.F. Borodkin in the Ivanov Chemical Engineering Institute by a procedure analogous to that employed by I.M.Kogan (Khimiya krasiteley /Dye chemistry/ p.657, M.,1956) for synthesizing metallo-phthalocyanines. That the complex actually was formed was checked by infrared spectroscopy. The luminescence spectra in the red and near infrared (500 to 1000 mμ) regions were recorded photoelectrically by means of a set-up assembled about an ISP-51 glass optics spectrograph (dispersion at 700 mμ

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L 17782-63

ACCESSION NR: AP3005850

about 5 mμ/mm). The spectra were obtained for the UO_2Phc (Phc = the phthalocyanine skeleton) suspended in vaseline oil and in solutions in dioxane and nonane. These were compared with the spectra of metal-free H_2Phc and MetPhc. The results clearly indicate complex formation. Study of the fine structure of the luminescence spectra by the Shpol'skiy (frozen solution) method indicates that the uranyl ion scarcely perturbs the energy levels of the conjugated bond system of the azaporphyrin ring of UO_2Phc. The coordinating uranyl ion participates in the emission process. The excitation wavelength dependence of the luminescence spectrum indicates the existence of at least two types of luminescence centers: one active in electronic transitions from an excited singlet state to the ground state of the complex; the other is responsible for luminescence incident to transfer of energy from the uranyl cation to the system of π-conjugated bonds of the azaporphyrin ring. A number of the absorption and luminescence spectra are reproduced in the figures. The wavenumbers of the luminescence lines are listed in tables. "We take this opportunity to thank Academician A.N.Terenin for suggesting the topic and guidance in the work. We are also grateful to Docent V.F.Borodkin of the Ivanov Chemical Engineering Institute for synthesis of the complex and to laboratory technician D.S.By*strov for recording the infrared absorption spectra." Orig.art. has: 10 figures and 4 tables.

Card 2/2

S/020/63/148/005/012/029
B102/B186

AUTHORS: Lyalin, G. N., Kobyshev, G. I.

TITLE: Luminescence of the uranyl-phthalocyanin complex

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 5, 1963, 1053 - 1056

TEXT: The uranyl-phthalocyanin complex investigated was synthesized by V. F. Borodkin in the Ivanovskiy khimiko-tekhnologicheskiy institut (Ivanovo Institute of Chemical Technology). The IR absorption spectrum of the complex was characterized by the 1055, 1068, and 1530 cm^{-1} bands which are observed in phthalocyanins containing metal atoms, and the 1310, 1325, and 1006 cm^{-1} bands similar to those observed in free phthalocyanin. The 920 cm^{-1} frequency observed is attributed to stretching vibrations of the UO_2^{++} ion. All bands differ in intensity from those observed in metal-free phthalocyanin. The electron absorption and luminescence spectra also differ for uranyl phthalocyanin and metal-free phthalocyanin, both dissolved in dioxane. The solvent has little effect on the position of the peaks. The presence of the uranyl complex is characterized by the 661, 632, and 598 mμ (290°K) absorp-

tion and 676, 710, and 748 m ($77^{\circ}K$) luminescence bands. The integral intensity of the luminescence spectrum decreases at $77^{\circ}K$ and increased with T. The vibrational structure of the spectrum was studied by Shpol'skiy's method (UFN, 77, 321, 1962) at $77^{\circ}K$ on UO_2-phthalocyanin samples dissolved in honane, and compared with the results obtained for metal-free H_2-phthalocyanin in equal concentration (10^{-5} M). The fact that the luminescence in UO_2-phthalocyanin proved to depend partly on the exciting frequency indicates the presence of at least two different luminescence centers. The series of peaks with 676, 709, and 747 mμ is a result of the luminescence of electronic excitation on the complex as a whole. The series with the green peak (692 mμ at $290^{\circ}K$) arises on energy transfer from the UO_2^{++} to the system of π-conjugate bonds of the azaporphyrin ring of the UO_2-phthalocyanin molecule. There are 3 figures and 3 tables.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

PRESENTED: July 21, 1962, by A. N. Terenin, Academician
SUBMITTED: July 10, 1962

LYALENY, G. N.

AID Nr. 967-5 15 May

ENERGY TRANSFER FROM URANYL CATION TO PHTHALOCYANIN IN SOLUTION AND IN ADSORBED STATE (USSR)

Kobyshev, G. I., G. N. Lyalin, and A. N. Terenin. IN: Akademiya nauk SSSR. Doklady, v. 148, no. 6, 21 Feb 1963, 1294-1297. S/020/63/148/006/010/023

A spectrophotometric study has been conducted of excitation energy transfer from uranyl cations to phthalocyanin at various temperatures. Solutions of H_2 phthalocyanin in dioxane and Mg phthalocyanin in ethanol with 10^{-4} to 10^{-5} M concentrations were used with 10^{-3} to 10^{-4} M uranyl nitrate or uranyl acetate additive. The addition of uranyl salts produced, with proper illumination, a ten- to twentyfold increase in the intensity of luminescence of both phthalocyanin solutions; however, the addition of magnesium or vanadyl salts produced no effect, eliminating ionic effects on higher levels of the pigment as a possible explanation. Along

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AID Nr. 967-5 15 May

ENERGY TRANSFER [Cont'd] S/020/63/148/006/010/023

with the increased luminescence in the presence of uranyl cations, an anomalous temperature dependence of luminescence was observed which was most pronounced in the case of H_2 phthalocyanin with uranyl acetate in dioxane. The dependence of spectra on wavelength of the excitation light was studied, as well as energy transfer between uranyl ions and phthalocyanin, adsorbed on magnesium oxide. [BB]

Card 2/2

L 13410-63 BDS

ACCESSION NR: AP3000526 S/0020/63/150/002/0407/0410

AUTHOR: Lyalin, G. N.; Koby*shev, G. I.; Terenin, A. N. 46

TITLE: Quenching of luminescence of carotenoid adsorbants

SOURCE: AN SSSR. Doklady, v. 150, no. 2, 1963, 407-410.

TOPIC TAGS: luminescence quenching, carotenoid adsorbants, lability, Beta-carotine, lutein

ABSTRACT: The adsorbants and solutions of Beta-carotine and the structurally related lutein which enter into the composition of the pigments of a photo-synthesizing plant were studied. The lability degree of addition of O sub 2 to the molecules of these pigments was explained in detail by the luminescence quenching method. "We wish to express our thanks to Professor D. I. Sapozhnikov for submitting Beta-carotine and lutein specimens and to V. I. Shirokov for carrying out the fluorometric measurements." Orig. art. has: 3 figures and 1 formula.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo gosudarstvennogo universiteta im. A. A. Zhdanova (Scientific Research Institute of Physics, Leningrad State University)

Card 1/2

KOBYSHEV, G.I.; LYALIN, G.N.; TERENIN, A.N., akademik

Photoreaction of Mg-phthalocyanin with a coordinated uranyl cation. Dokl. AN SSSR 153 no.4:865-868 D '63. (MIRA 17:1)

1. Leningradskiy gosudarstvennyy universitet im. A.A. Zhdanova.

ACCESSION NR: AP4009478 S/0051/63/015/006/0837/0838

AUTHOR: Koby*shev, G.I.; Lyalin, G.N.; Terenin, A.N.

TITLE: Manifestation of a hydrogen bond in the luminescence spectrum of magnesium phthalocyanine with uranyl nitrate hexahydrate

SOURCE: Optika i spektroskopiya, v.15, no.6, 1963, 837-838

TOPIC TAGS: hydrogen bond, protonization, magnesium phthalocyanine, uranyl nitrate, magnesium phthalocyanine luminescence

ABSTRACT: In an earlier investigation (G.I.Koby*shev, G.N.Lyalin and A.N.Terenin, DAN SSSR,148,1294,1963) in which photoluminescence was employed to study excitation energy transfer from the coordinated UO_2^{++} ion to magnesium phthalocyanine in ethyl alcohol solutions there was established the following unique effect: at 290°K there is present in the luminescence spectrum of Mg phthalocyanine the usual narrow peak of this compound at 673 mμ together with a number of secondary longer wavelength peaks, but upon freezingof the solution (cooling to 77°K) this peak virtually disappears and a new peak at 703 mμ appears in the sensitized luminescence spectrum. It was inferred that the new band was due to a protonized form of the pigment. Ac-

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AP4009478

cordingly, in the present study there were recorded the fluorescence spectra of magnesium phthalocyanine molecules adsorbed on silica gel and aluminosilica gel under conditions of higher resolution (DFS-4 diffraction grating spectrometer with photoelectric recording). In the case of both adsorbants there was observed the same strong peak at 702 mμ. In view of the fact that these different adsorbants have in common the presence of proton donor centers, it is logical to attribute the new peak to a protonized form of Mg phthalocyanine, i.e., to a formation of a hydrogen bond. The probable mechanism of protonization is discussed and other features of the luminescence spectrum of protonized Mg phthalocyanine are described. Orig.art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 23May63 DATE ACQ: 03Jan64 ENCL: 00

SUB CODE: PH,CH NR REF SOV: 006 OTHER: 000

Card 2/2

LYALIN, G.N., inzh.

Efficiency of electronic systems with unit-type or panel structure. Priborostroenie no.12:23-24 D '65.

(MIRA 19:1)

L 26087-66 EWT(1) SCTB DD

ACC NR: AP6015085 SOURCE CODE: UR/0020/66/168/001/0068/0071

AUTHOR: Kobyshev, G. I.; Lyalin, G. N.; Terenin, A. N. (Academician)

ORG: Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvennyy universitet)

TITLE: Luminescence of chlorophyll excited by a ruby laser

SOURCE: AN SSSR. Doklady, v. 168, no. 1, 1966, 68-71

TOPIC TAGS: luminescence, luminescence spectrum, luminescent material, laser application, laser effect, chlorophyll

ABSTRACT: Experiments were performed to detect radiation emission during transition of a molecule from the second excited singlet level to the ground level ($S_2^* \longrightarrow S_0$). A high-power ruby laser (J. L. Hall et al., Phys. Rev. Lett., 11, 364 (1963); W. L. Peticolas, et al., Phys. Rev. Lett., 10, 43, (1963); J. B. Birks et al., Phys. Lett., 18, 127 (1965) was used to excite solution of chlorophyll "a" (5×10^{-3} M), methyl-chlorophyllide (5×10^{-3} M), magnesium phthalocyanine (10^{-4} M) in ethyl alcohol, chlorophylline (5×10^{-3} M) in methyl alcohol, and phthalocyanine without metal (10^{-4} M) in dioxane. The emission from a "Razdan" K-4-2 laser (pulse energy of 1 joule, with a pulse repetition frequency of 2 cps) was focused on the object by a lens through a KS-17 light filter. The luminescence of the object was separated by means of a ZMR-3 monochromator (linear dispersion in the investigated range was

Card 1/2 UDC: 535.373.2